

Plantae Chinenses Forrestianae.

Plants discovered and collected by George Forrest during his first exploration of Yunnan and Eastern Tibet in the years 1904, 1905, and 1906.

Enumeration and Description of Species of *Sedum*.

BY

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Paris.

With Plates LXXXV.-LXXXVI.

Sedum multicaule, Wallich.

"Hillsides on Thupa and Hopa valleys, Yangtse and Mekong divide between Pung tzu la and Yeh Chih. Alt. 8000-9000 ft. September 1904." G. Forrest. No. 207.

"W. Yunnan, on boulders in moist, open situations in side valleys on the eastern flank of the Tali Range. Lat. $25^{\circ} 40' N$. Alt. 9000-10,000 ft. September 1906. Plant of 2-5 inches. Flowers yellowish-green." G. Forrest. No. 5051.

"Yunnan, rocks near summit of Nin Chang pass and on Chung Tien plateau. Alt. 9000-13,000 ft. 1904." G. Forrest. No. 188.

"Yunnan, ledges and crevices of cliffs and humus-covered boulders, on eastern flank of the Lichiang Range. Lat. $27^{\circ} 20' N$. Alt. 10,000-11,000 ft. September 1906." G. Forrest. No. 2896.

Sedum Engleri, Raymond Hamet, var. *Forresti*. Var. nov.

Sepalis infra insertionem in calcar productis; squamis paulo longioribus quam latioribus.

"Tibet, on rocks Shupa valley, Yangtse-Mekong divide. Alt. 8000 ft. 1904." G. Forrest. No. 316.

Sedum indicum, Raymond Hamet, var. *Forresti*. Var. nov.

Foliis inferioribus et mediis oppositis, superioribus alternis, omnibus ovato-suborbicularibus latissimis acutis.

[Notes, R.B.G., Edin., No. XXIV., January 1912.]

"N.W. Yunnan, on dry clefts of rocks and shady cliffs on the Yako ridge valley of the Salwen, Salwen-Irrawadi divide. Plant of 1-2 ft. Flowers yellowish-green. Lat. $26^{\circ} 30' N$. Alt. 7000-9000 ft. November 1905." G. Forrest. No. 924.

Sedum indicum, Raymond Hamet, var. **genuinum**, Raymond Hamet.

"N.W. Yunnan, on humus-covered boulders and ledges of cliffs on the eastern flank of the Lichiang Range. Lat. $27^{\circ} 20' N$. Alt. 11,000-12,000 ft. September 1906. Plant of 6-10 inches. Flowers ruddy green." G. Forrest. No. 3018.

Sedum drymarioides, Hance, var. **stellariaefolium**, Raymond Hamet.

"Yunnan, wet rocks on Nin Chang pass between Yangtse and Chung Tien plateau. Alt. 9000-10,000 ft. 1904." No. 197.

Sedum Balfouri,* Raymond Hamet. Sp. nov. Plate lxxxv.

Planta perennis foliis inferioribus rosulatis, sessilibus, in calcar non productis, planis, glabris, lineari-obovatis, basi latissimis paulo dilatatis, apice sensim attenuatis mucronatis, marginibus integris ciliatis. Scapi plures extrarosulares, basi curvati, deinde erecti, robustiusculi, simplices, glabri. Scaporum folia alterna, sessilia, infra insertionem in calcar producta, plana, glabra, obovato-lanceolata, integra, apice acuta, marginibus ciliatis. Inflorescentia corymbiformis. Bractee foliis similes sed minores. Pedicelli glabri, calyce breviores. Flores satis numerosi. Calyx glaber, segmentis 5, tubo longioribus, basi non productis, longe deltoideis, marginibus integris, acutis, longioribus quam latioribus. Corolla glabra, calyce longior, segmentis 5 oblongis, marginibus integris, apice acutiusculis, mucronatis, longioribus quam latioribus. Stamina 10; filamenta oppositipetala infra corollae medium inserta; antherae corollae medium superantes. Carpella 5, multiovulata, glabra, in stylos carpellis breviores attenuata. Squamae 5, lineares obtusae multo longiores quam latiores. Folliculi 5, multi-seminati, erecti, lateribus internis non gibbosis. Semina. . . .

Scapi 25-31 cm. longi. Folia inferiora 23-25 mm. longa, 6.60-8 mm. lata. Scaporum folia et bractearum calcar 0.90-2.80 mm. longum; lamina 6.40-22 mm. longa, 1.25-6.40 mm.

* Herbarii Edinensis Crassulaceis a Professor Bayley Balfour mihi amabiliter communicatis, quae speciei hujus botanici nomen imposui, ut quam gratissimus erga eum cognoscerer.

lata. Inflorescentia 40-43 mm. longa, 50-60 mm. lata. Pedicelli 0.80-1 m. longi. Calycis pars concreta 1 mm. longa; pars libera 2.60-3 mm. longa, 1.15-1.20 mm. lata. Corollae pars concreta 0.10 mm. longa; pars libera 5.40-5.50 mm. longa, 2.05-2.20 mm. lata. Stamina alternipetalorum filamentorum pars concreta 0.10 mm. longa; pars libera 3.60 mm. longa, 0.60 mm. lata. Stamina oppositipetalorum filamentorum pars concreta 0.60 mm. longa; pars libera 2.80 mm. longa, 0.60 mm. lata. Antherae 1.20 mm. longae, 0.60 mm. latae. Carpellorum pars concreta 0.90 mm. longa; pars libera 2.40 mm. longa. Styli 1.50 mm. longi. Squamae 1 mm. longae, 0.12 mm. latae.

"Tibet, Kari pass, Yangtse-Mekong divide, on rocks. Alt. 9000-10,000 ft. 1904." G. Forrest. No. 196.

Obs.:—Haec species valde insignis ab omnibus adhuc descriptis Sedis maxime distat.

***Sedum obtusipetalum*, Franchet.**

"Yunnan, valley of the Yangtse, between Chu Tien and Shi Ku. Alt. 7000 ft. 1904." G. Forrest. No. 199.

***Sedum yunnanense*, Franchet, var. *valerianoides*, Raymond Hamet.**

"N.W. Yunnan, ledges of shady cliffs and on humus-covered boulders on the eastern flank of the Lichiang Range. Lat. 27° 15' N. Alt. 10,000-11,000 ft. June 1906. Plant of 12-24 inches. Flowers green." G. Forrest. No. 2458.

***Sedum yunnanense*, Franchet, var. *Forresti*, Raymond Hamet. Var. nov.**

Foliis per 4 verticillatis, sublineari-oblongis, sublobatis, lobis paucis; inflorescentia paniculiformi, pauciflora, satis laxa, pedunculis inferioribus superioribus non ramosioribus; carpellis erectis.

"Yunnan, crevices and ledges of cliffs and on limestone drift in pine forests, eastern flank of the Lichiang Range. Lat. 27° 20' N. Alt. 10,000-11,500 ft. June 1906. Plant of 8-16 inches. Foliage deep crimson. Flowers red, anthers greenish-yellow." G. Forrest. No. 2384.

***Sedum primuloides*, Franchet.**

"Yunnan, dry rocks on base of Lichiang peak, Lichiang valley. Alt. 12,000 ft. 1904. Flowers white." G. Forrest. No. 200.

Sedum Oreades, Raymond Hamet.

"W. Yunnan, on moss-covered boulders in open situations on the eastern flank of the Tali Range. Lat. $25^{\circ} 40'$ N. Alt. 9,000–11,000 ft. August 1905. Plant of $1\frac{1}{2}$ –3 inches. Flowers yellow." G. Forrest. No. 5052.

"Yunnan, ledges of cliffs and on humus-covered boulders on the eastern flank of the Lichiang Range. Lat. $27^{\circ} 25'$ N. Alt. 11,000–12,000 ft. September 1906." G. Forrest. No. 3051.

Pro sinica flora planta nova.

Sedum Beauverdi, Raymond Hamet.

"W. Yunnan, on boulders and cliffs on the eastern flank of the Tali Range. Lat. $25^{\circ} 40'$ N. Alt. 12,000–13,000 ft. Plant of 1–2 inches. July–September 1906." G. Forrest. No. 4688.

Sedum trullipetalum, Hook f. et Thoms.

"W. Yunnan, on moss-covered boulders, dry, shady situations in side valleys on the eastern flank of the Tali Range. Lat. $25^{\circ} 40'$ N. Alt. 10,000–11,000 ft. August 1906. Plant of 2–3 inches. Flowers brassy yellow." G. Forrest. No 5050.

Sedum Forresti, Raymond Hamet. Sp. nov. Plate lxxxvi.

Planta annua, steriles caules non edens. Radices fibratae. Caules floriferi erecti, graciliusculi, ramosi, glabri. Folia alterna, sessilia, infra insertionem in calcar producta; calcar integrum, obtusum; lamina obovato-linearis vel obovato-oblonga, integra, glabra, obtusa. Inflorescentia corymbiformis, satis laxa. Flores pauci. Bracteae foliis similes sed eis minores. Pedicelli calyce breviores vel illi subaequales. Calyx glaber, segmentis 5, infra insertionem in calcar productis, obovato-oblongis, marginibus integris, apice obtusis, longioribus quam latioribus. Corolla glabra, calyce paulo longior vel paulo brevior, segmentis 5, tubo multo longioribus, obovato-oblongis, marginibus integris, obtusis, late mucronatis, longioribus quam latioribus. Stamina 10, filamenta oppositipetala infra corollae medium inserta; antherae superiores petalorum apicem paulo superantes. Carpella 5, pauciovulata, glabra, in stylos carpellis breviores attenuata, placentis a gracili ligamine secundum carpellorum margines dispositis constitutis. Squamae 5, subteretes, apice et basi levissime dilatatae, longiores quam latiores. Folliculi 5, pauciseminati, erecti, lateribus internis non gibbosis. Semina . . .

Planta 5–7 cm. longa. Foliorum et bractearum calcar

0.30-0.80 mm. longum; lamina 4.4-9.7 mm. longa, 1.4-3.25 mm. lata. Pedicelli 4.80-9.25 mm. longi. Sepalorum calcar 0.40-0.90 mm. longum; lamina 3.8-5.5 mm. longum, 1.2-1.8 mm. latum. Corollae pars concreta 0.05 mm. longa; pars libera 4.60-5.30 mm. longa, 1.80-2.55 mm. lata. Staminum alternipetalorum filamentorum pars concreta 0.05 mm. longa; pars libera 4-4.60 mm. longa, 0.50-0.60 mm. lata. Staminum oppositipetalorum filamentorum pars concreta 0.60-0.70 mm. longa; pars libera 3.80-4.50 mm. longa, 0.40-0.45 mm. lata. Antherae 1-1.10 mm. longae, 0.70-0.80 mm. latae. Carpellorum pars concreta 0.80-1.30 mm. longa; pars libera 2.90-3.25 mm. longa. Styli 1.70-1.80 mm. longi. Squamae 1.30-1.40 mm. longae, 0.20-0.30 mm. latae.

"N.W. Yunnan, dry, shady situations on cliffs and humus-covered boulders on the eastern flank of the Lichiang Range. Lat. 27° 20' N. Alt. 10,000-11,000 ft. August 1906. Plant of 2-3 inches. Flowers brassy yellow." G. Forrest. No. 2808.

Obs. A *Sedo glaciali* haec species:—1. sepalis obtusis et non acutis leviter cuspidatis; 2. petalis proportionaliter latioribus; 3. placentis a gracili ligamine secundum carpellorum margines disposito constitutis, et non a mole semiorbiculari in carpellorum laterum parte inferiore disposito constitutis differt.

A *Sedo obtusipetalo*:—1. sepalis obovato-oblongis et non sublinearibus vel ovato-linearibus; 2. petalis proportionaliter latioribus; 3. antheris petalorum apicem et non petalorum medium superantibus; 4. squamis apice vix dilatatis, multo longioribus quam latioribus, et non apice valde dilatatis, vix longioribus quam latioribus, distat.

Sedum trifidum, Wallich, var. **Balfouri**, Raymond Hamet.
Var. nov.

Foliis in caulis dimidiam vel tertiam partem superiorem dispositis, petiolatis, lamina ovato-oblonga, ovato-orbiculari vel orbiculari, crenata, crenis paucis; sepalis ovatis vel deltoideis; petalis marginibus plus minusve erosis.

"Yunnan, growing on damp cliffs and the roots of trees in valleys of the Mekong-Yangtse divide between Pang tze la and Yeh Chih. Alt. 9000-13,000 ft. September 1904." G. Forrest. No. 787 C D E F G.

Sedum trifidum, Wallich, var. **Forresti**, Raymond Hamet.
Nova var.

Foliis caulis apice aggregatis, petiolatis, lamina orbiculari vel ovato-orbiculari vel ovata, crenata, crenis paucis; sepalis linearibus; petalis marginibus integerrimis.

"Yunnan, moist rocks on pass between Teng Chuan valley and Sung Kwei. Alt. 8000-11,000 ft. September 1904. Flowers greenish-white." G. Forrest. No. 212.

"W. Yunnan, on rocks and moss-covered trees, moist, shady situations in side valleys on the eastern flank of the Tali Range. Lat. 25° 40' N. Alt. 10,000-12,000 ft. September 1906. Plant of 2-4 inches. Flowers pale yellow." G. Forrest. No. 5049.

"N.W. Yunnan, on trees and moss-covered boulders in dense, shady pine forests on the eastern flank of the Lichiang Range. Lat. 27° 25' N. Alt. 9000-10,000 ft. September 1906. Succulent plant of 3-6 inches. Flowers and foliage greenish or ruddy yellow." G. Forrest. No. 2971.

"Yunnan, growing on damp cliffs and the roots of trees in valleys of the Mekong-Yangtse divide between Pung tze la and Yeh Chih. Alt. 9000-13,000 ft. September 1904." G. Forrest. No. 787 A B.

Sedum Alfredi, Hance.

"N.W. Yunnan, moist, shady situations on cliffs and boulders in side valleys on the eastern flank of the Lichiang Range. Lat. 27° 25' N. Alt. 9000-11,000 ft. September 1906. Plant of 4-8 inches. Flowers greenish-yellow." G. Forrest. No. 2989.

"W. Yunnan, on moss-covered rocks and trunks of trees in mixed forests on the eastern flank of the Tali Range. Lat. 25° 40' N. Alt. 8000-10,000 ft. June-August 1906. Plant of 6-8 inches. Flowers greenish-yellow." G. Forrest. No. 4677.

Sedum bupleuroides, Wallich.

"N.W. Yunnan, dry, stony, open situations, ledges of cliffs, etc., on the eastern flank of the Lichiang Range. Lat. 27° 20' N. Alt. 9000-10,500 ft. Plant of 9-12 inches. Flowers reddish brown, anthers green. June 1906." G. Forrest. No. 2441.

"N.W. Yunnan, open, grassy, situations in thickets on the eastern flank of the Lichiang Range. Lat. 27° 20' N. Alt. 9000-10,000 ft. Plant of 14-16 inches. Flowers green." G. Forrest. No. 2492.

Sedum scabridum, Franchet.

"N.W. Yunnan, in crevices of boulders and on limestone drift on the eastern flank of the Lichiang Range. Lat. 27° 10' N. Alt. 11,000-12,000 ft. June 1906. Tufted plant of 2-4 inches. Flowers red, anthers green." G. Forrest. No. 2377.

***Sedum nobile*, Franchet.**

"W. Yunnan, mossy, stony, shady situations in pine forests on the eastern flank of the Tali Range. Lat. $25^{\circ} 40'$ N. Alt. 12,000–13,000 ft. October 1906. Plant of 3–9 inches. Flowers green, anthers brown." G. Forrest. No. 5055.

***Sedum fastigiatum*, Hook. f. et Thoms., var.**

"W. Yunnan, on moss-covered boulders in shady situations on the eastern flank of the Tali Range. Lat. $25^{\circ} 40'$ N. Alt. 9000–11,000 ft. September 1906. Tufted plant of 3–6 inches. Flowers greenish." G. Forrest. No. 5054.

***Sedum roseum*, Scop., var.**

"N.W. Yunnan, on humus-covered boulders in the beds of mountain streams on the eastern flank of the Lichiang Range. Lat. $27^{\circ} 15'$ N. Alt. 11,000–12,000 ft. July 1906. Plant of 9–16 inches. Flowers greenish-brown." G. Forrest. No. 2610.

***Sedum roseum*, Scop., var.**

"W. Yunnan, on moss-covered boulders in dry, shady situations in side valleys on the eastern flank of the Tali Range. Lat. $25^{\circ} 40'$ N. Alt. 10,000–11,000 ft. July–August 1906. Plant of 4–8 inches. Flowers greenish-yellow, root aromatic when fresh." G. Forrest. No. 5053.

***Sedum roseum*, Scop., var.**

"N.W. Yunnan, moist, rocky pasture on the Kari pass, Yangtse-Mekong divide. Lat. 28° N. Alt. 12,000–14,000 ft. September 1904. Plant of 6–10 inches. Flowers green." G. Forrest. No. 5087.

"S.E. Tibet, moist, open pasture on the Mekong-Salwen divide, Mekong valley. Lat. 28° N. Alt. 12,000 ft. September 1904. Plant of 6–12 inches. Flowers green." G. Forrest. No. 5088.

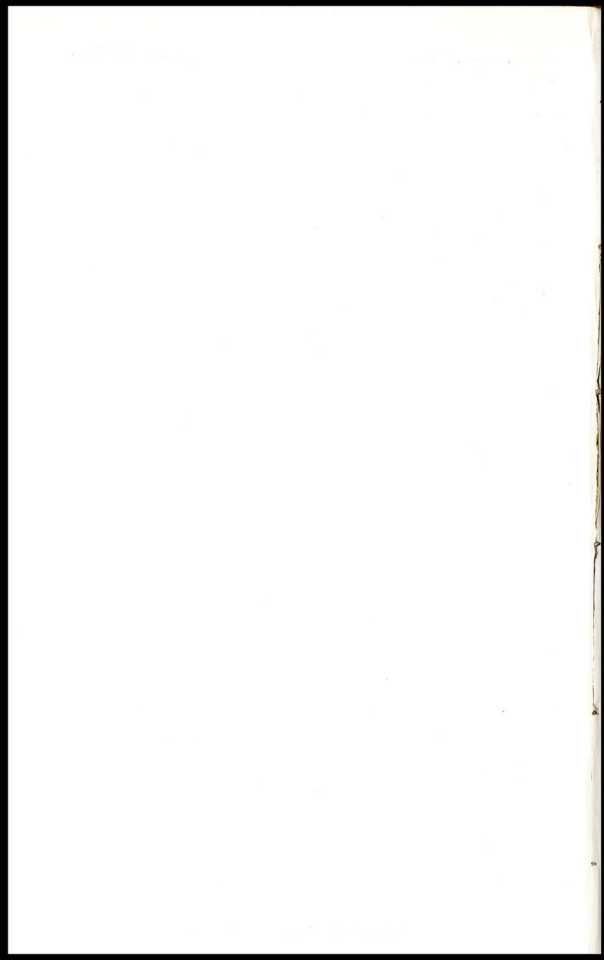
LIST OF PLATES.

Illustrating M. Raymond Hamet's Paper on Species of *Sedum* collected by
George Forrest in Yunnan and Eastern Tibet.

The plates are taken from photographs by Mr. R. Adam of dried
specimens in the Herbarium of the Royal Botanic Garden, Edinburgh.

PLATE LXXXV. *Sedum Balfouri*, Raymond Hamet. Sp. nov.

LXXXVI. *Sedum Forresti*, Raymond Hamet. Sp. nov.





PLANTS OF E. TIBET AND S.W. CHINA.
2808 Collected by GEORGE FORREST.
Illustrated by A. A. DULLEY of NESS, NESTON, CHESHIRE.



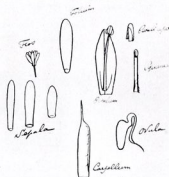
No. 2808.

Plant of 2-3 inches. Flowers
brassy yellow.
Dry, shady situations on cliffs and
humus covered boulders on the
eastern flank of the Lichiang
Range.

Lat. 27°20'N. Alt. 10-11000 ft.
Aug. 1906. N.W. Yunnan, China.

Bestenfalls für das „Pflanzenreich“.

Sedum Forresti Raymond Hamet
Original der Art!
det. Raymond Hamet
1907



Sedum Forresti
Raymond Hamet

